Ambient Weather RC-1400WB Radio Controlled Analog Wall Clock User Manual

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1 Introduction

Thank you for your purchase of the Ambient Weather Radio Controlled Analog Wall Clock. The following user guide provides step by step instructions for operation and troubleshooting. To download the latest manual and additional troubleshooting tips, please visit:

http://ambientweather.wikispaces.com/rc1400wb

2 Overview

The radio controlled wall clock (RCC) updates time and date automatically using a radio receiver from the atomic time transmitted from Fort Collins, CO, USA (WWVB).

This signal is shortwave, and travels thousands of miles by bouncing off of the ionosphere. The signal is best received at night when there is no solar interference.

The radio controlled clock never requires setting, and automatically adjusts to daylight savings time (DST). This feature can be overridden for locations that do not observe DST (examples, Arizona and Hawaii).

Features include:

- Noise free second hand
- Hour, minute and second hands
- Automatic daylight savings time update and leap year observation
- Four time zone settings (Pacific, Mountain, Central, Eastern)
- Long battery life

The radio controlled reception is attempted every two hours, and generally is successful at night. Just one successful synchronization per day is sufficient to accurately set the clock to the second.

3 Important Notes

Before using this product, please read the following :

1. Read these instructions – All operating instructions should be read before the unit is operated.
2. Operate and store in a dry location. Do not operate outside.
3. The product must be protected against electromagnetic fields, static electrical fields, extreme temperatures, and moisture.
4. Clean only with soft damp cloth.
5. Do not use near any heat sources such as radiators, heat registers, stoves, or other device (including amplifiers) that produce heat.
6. Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as liquid has been spilled or the device has been exposed to rain or moisture, does not operate normally, or has been dropped.
7. This device shall not be exposed to dripping or splashing water and that no object filled with liquids shall be placed on the device.
8. Do not attempt to dismantle, open or repair this product yourself. If a fault occurs, seek advice from Ambient Weather support only.
9. The product must not be exposed to substantial mechanical strain or strong vibrations.
10. Do not leave packaging materials unattended. It may become a dangerous plaything for children.

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11. Handle the product with care. It can be damaged by dropping and vibration.

Battery Safety Instructions

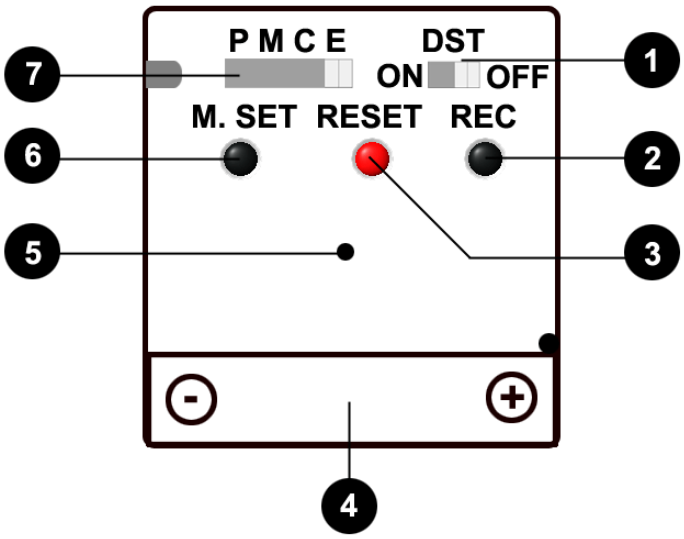
1. If the battery electrolyte in the cells should get on your skin, thoroughly wash with soap and water. If in the eyes, rinse thoroughly with cool water. Immediately seek medical attention.
2. Leaking or damaged batteries might cause acid burns when in contact with skin, therefore use suitable protective gloves to handle corrupted batteries.
3. Correct polarity must be observed while inserting the batteries.
4. Batteries should be removed from the device if not used for a long period of time to avoid damage through leaking.
5. Keep batteries out of reach of children. Batteries can be swallowed and represent a choking hazard.
6. Batteries must not be dismantled, short-circuited or thrown into fire.

4 Installation

1. The clock includes a suspension eye for hanging on a wall.
2. To ensure proper radio reception, the clock should not be placed near electronic devices or on a metal wall (metal blocks radio signals).

5 Controls

The following controls are on the back of the clock face.



#	Description	#	Description
1	Daylight Savings Time Observation (OFF for Arizona)	5	Locking pin (normally removed before shipping)
2	Resynchronization with Atomic Clock	6	Manual Clock Set
3	Reset Button	7	Time Zone (P=Pacific, M=Mountain, C=Central, E=Eastern)
4	AA Battery Compartment		

Figure 1

6 Battery Installation and Initial Operation

1. Reference Figure 1. Enter the Time Zone and Daylight Savings Time (DST) as outlined in Table 1.

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#	Cities	Time Zone	Hours from GMT	Daylight Savings Time (DST)
1	Pacific Time	P	-8	ON
2	Mountain Time	M	-7	ON
3	Arizona Time	M	-7	OFF
4	Central Time	C	-6	ON
5	Eastern Time	E	-5	ON

Table 1

2. On the back of the housing, insert one AA battery, observing the correct polarity. The correct polarity is indicated in the battery compartment.
3. The second hand will run and stop at the 12:00 o'clock position, followed by the minute hand and hour hand aligning to the 12:00 o'clock position. This confirms the clock hands are operating properly.
4. The clock attempts to synchronize with the atomic clock for 12 minutes. If it synchronizes, the clock sets properly. If it does not receive the signal from the atomic clock (very likely during the daytime), the clock will begin running from the 12:00 position until the time synchronization is successful.

   The clock will attempt synchronization every two hours (1:00, 3:00, 5:00, 7:00, 9:00, 11:00, 13:00, 15:00, 17:00, 19:00 and 21:00). During synchronization, the second hand will operate properly.

7 Mechanical Deviation Adjustment

During normal operation, the second hand will resynchronize at 1:30, 9:30 and 17:30 for two minutes to account for mechanical deviation. The resynchronization occurs for two minutes, and makes the proper second hand adjustment.

During normal operation, the minute hand will resynchronize from 1:52 to 1:58. If the minute hand deviates within two minutes, it will automatically adjust. If the minute deviates more than two minutes, the clock hands will align to 12:00 and attempt resynchronization.

8 Setting the Time Manually

If reception is not available, the clock date and time can be set manually.

To set manually, press and hold the **M. SET** button (Figure 1) for three seconds, and the clock second hand will stop and enter the manual mode.

Next, press and hold the **M. SET** button again until the time is two minutes ahead of the current time.

The clock will begin updating again after the **M. SET** button has not been pressed for two minutes.

The clock will attempt synchronization every two hours (1:00, 3:00, 5:00, 7:00, 9:00, 11:00, 13:00, 15:00, 17:00, 19:00 and 21:00). During synchronization, the second hand will operate properly.

9 Forced Radio Resynchronization

To force resynchronization from the atomic clock, press and hold the **REC** button for 3 seconds. The hands will return to the 12:00 position.

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The clock attempts to synchronize with the atomic clock for 12 minutes. If it synchronizes, the clock sets properly. If it does not receive the signal from the atomic clock (very likely during the daytime), the clock will begin running from the 12:00 position until the time synchronization is successful.

The clock will attempt synchronization every two hours (1:00, 3:00, 5:00, 7:00, 9:00, 11:00, 13:00, 15:00, 17:00, 19:00 and 21:00). During synchronization, the second hand will operate properly.

10 Maintenance

The device is maintenance-free, but should be cleaned occasionally. Only use a slightly dampened and soft cloth to clean the housing. Do not use abrasives or solvents.

11 Specifications

Operating Voltage	1.5 Vdc
Battery	1 x AA
Battery Life	About 1 year (high quality batteries)
Radio controlled time protocol	WWVB (USA)
Dimensions	Approximately 14”

12 Glossary of Terms

Term	Definition
DST	Daylight saving time (DST) or summer time is the practice of advancing clocks during the lighter months so that evenings have more daylight and mornings have less. Typically clocks are adjusted forward one hour near the start of spring and are adjusted backward in the autumn.
RCC	A radio-controlled clock is a clock that is synchronized by a time code bit stream transmitted by a radio transmitter connected to a time standard such as an atomic clock.
WWVB	WWVB is a NIST time signal radio station near Fort Collins, Colorado. WWVB is the station that radio-controlled clocks in most of North America use to synchronize themselves. The 70 kW ERP signal transmitted from WWVB is a continuous 60 kHz carrier wave, the frequency of which is derived from a set of atomic clocks located at the transmitter site, yielding a frequency uncertainty of less than 1 part in one trillion.

13 Troubleshooting Guide

If your question is not answered here, you can contact us as follows:

1. Email Support: support@ambientweather.com
2. Technical Support: 480-346-3380 (M-F 8am to 3pm Arizona Time)

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Problem	Solution
Radio controlled clock does not update or time is wrong.	• **Hang the clock on a wall**. Laying the clock flat on a surface will result in poor reception. • **Be patient. Wait at least one week before contacting Ambient Weather.** The RCC is a shortwave signal originating near Fort Collins, Colorado, and travels thousands of miles by bouncing off the ionosphere. The signal is better at night due to solar interference during the daytime. The farther you are from Colorado, the weaker the signal. Urban environments can also affect the signal strength. • **Locate the Clock at night near a window or outer wall, and away from other radiating sources, like wireless routers or TVs.** This will insure the best reception possible. • **Replace the batteries in the clock if required.** Low batteries are often the cause for weak reception. • **Check your Time Zone Setting.** Make sure your time zone is set properly in the clock settings. • **Avoid closed in areas.** Closed in areas such as basements are not recommended.
The clock is off by increments of an hour.	• **Check your Time Zone and DST Settings.** Make sure your time zone and DST switches are set properly.
The clock does not respond to commands.	• Press the reset button on the back of the clock.

14 Liability Disclaimer

Reading the "User manual" is highly recommended. The manufacturer and supplier cannot accept any responsibility for any incorrect readings and any consequences that occur should an inaccurate reading take place.

This product is not to be used for medical purposes or public information.

The specifications of this product may change without prior notice.

This product is not a toy. Keep out of the reach of children.

No part of this manual may be reproduced without written authorization of the manufacturer.

Ambient, LLC WILL NOT ASSUME LIABILITY FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR OTHER SIMILAR DAMAGES ASSOCIATED WITH THE OPERATION OR MALFUNCTION OF THIS PRODUCT.

This product complies with the applicable national and USA and European regulations. All rights

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reserved and patent pending.

15 Warranty Information

Ambient, LLC provides a 1-year limited warranty on this product against manufacturing defects in materials and workmanship.

This limited warranty begins on the original purchase date, and is valid only on products purchased and used in the United States, only to the original purchaser of this product, and only from an authorized dealer. To receive warranty service, the purchaser must contact Ambient, LLC for troubleshooting and service.

Warranty service can only be performed by an Ambient, LLC authorized service representative. The original receipt must be provided upon request as proof of purchase to Ambient, LLC.

Ambient, LLC will replace this product with new or reconditioned parts or products, if found to be defective during the limited warranty period specified above.

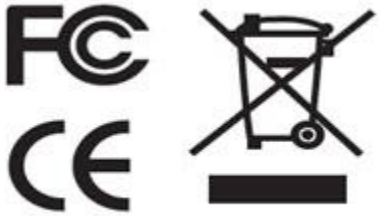
Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer.

The owner must pay any shipping charges incurred in getting your Ambient, LLC product to a Ambient, LLC for replacement or repair. Ambient, LLC will pay reasonable return shipping charges to the owner of the product.

Your Ambient, LLC warranty covers all defects in material and workmanship with the following specified exceptions: (1) damage caused by accident, unreasonable use or neglect (including the lack of reasonable and necessary maintenance); (2) damage resulting from failure to follow instructions contained in your owner's manual; (3) damage resulting from the performance of repairs or alterations by someone other than an authorized Ambient, LLC authorized service center; (4) units used for other than in the manner described in this manual.

16 Disposal

Please help in the preservation of the environment and return used batteries to an authorized depot.
The electrical and electronic wastes contain hazardous substances. Disposal of electronic waste in wild country and/or in unauthorized grounds strongly damages the environment.



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